Abstract Submitted
for the HAW14 Meeting of
The American Physical Society

A new mechanism to explore isospin transport and constrain the symmetry energy ZACH KOHLEY, K. STIEFEL, NSCL/MSU, R.T. DE SOUZA, S. HUDAN, Indiana University, K. HAMMERTON, NSCL/MSU — Heavy-ion collisions provide a unique probe of the isospin dependence of the nuclear Equation of State. Measurements of the isospin transport between the projectile and target in a heavy-ion collision has been intensively used to constrain the density dependence of the symmetry energy. These experiments require measurements of multiple systems and the isospin transport phenomenon occurs over a relatively short time period ($\sim$100-150 fm/c). Recently, the Indiana University reactions group studied the production and decay of dinuclear systems from mid-peripheral heavy-ion collisions. The IU group experimentally measured the two fragments from the decay of the dinuclear system and the results suggested that isospin transport was occurring over a long time-scale (600-900 fm/c) between the fragments. In this work, the experimental results are confronted with theoretical calculations using the Constrained Molecular Dynamics (CoMD) model to examine their sensitivity to the symmetry energy. The results show that the dynamics of the reaction are well reproduced by CoMD and that measurements of the N/Z of the fragments from the decay of the dinculear system are sensitive to the symmetry energy.

Zach Kohley
NSCL/MSU

Date submitted: 30 Jun 2014 Electronic form version 1.4